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ERCB

Energy Resources Conservation Board

640 Fifth Avenue SW
Calgary, Alberta
Canada T2P 3G4

Informational Letter

IL 87-1

TO: All Oil and Gas Operators
and Chemical Laboratories

7 April 1987

COMPRESSIBILITY FACTORS USED IN GAS VOLUME CALCULATIONS AND PHYSICAL PROPERTY DATA FOR NATURAL GASES

This Informational Letter addresses two related topics. Part 1 deals with acceptable methods of calculating compressibility factors for natural gas used in computing gas volumes; Part 2 deals with data for the physical properties of natural gases.

1 CALCULATION OF COMPRESSIBILITY FACTORS (SUPERCOMPRESSIBILITY)

Produced or injected gas volumes reported to the Board that are measured by an orifice meter or other metering device must be corrected for pressure, temperature, gas density, and the compressibility of the natural gas. These corrections are to be made in accordance with ANSI/API Standard 2530 (formerly referred to as AGA Report No. 3)[1], as required by section 14.070(8) of the Oil and Gas Conservation Regulations. This standard was revised and updated in 1985. The most significant change was in the use of a more accurate absolute temperature conversion of 459.67°R instead of 460°R. In 1986, a new method of calculating the compressibility factor for sweet, dry natural gas was adopted. This method, described in AGA Report No. 8[2], replaces the NX-19[3] Method that was formerly a part of the ANSI/API 2530 Standard.

Since the Board adopts the ANSI/API 2530 Standard, it requests operators who are currently using the NX-19 Method to change to the new AGA No. 8 Method, or to one of the other acceptable methods outlined later in this Informational Letter. Operators who are already using one of these other acceptable calculation methods may continue to do so without change.

The AGA No. 8 publication includes several approaches for estimating the properties of natural gas for use in the AGA No. 8 calculation. The full compositional analysis method should be used rather than the less accurate partial composition methods given in that publication. Also note that base conditions used in the calculation of Z_b (compressibility at base conditions) should be the standard metric base conditions of 101.325 kPa (14.696 psi) and 15°C (59°F) and not 14.73 psi and 60°F as given in AGA No. 8.

The AGA No. 8 Method is currently limited to gases having less than a 1 per cent concentration of a total of H_2S plus water plus other diluents (He, Ar, CO). Work is continuing on AGA No. 8 to adapt it to higher concentrations of these diluents.

For gases with compositions outside the range of AGA No. 8, a number of alternate methods exist for calculating compressibilities. These methods are applicable to a much wider range of gas compositions and include the sweet, dry natural gases where AGA No. 8 is recommended. For these sweet, dry natural gases, the AGA No. 8 Method does offer increased accuracy. However, rather than requiring operators to use AGA No. 8 for sweet gases and some alternate method for sour gases, the Board will accept any of the following calculation methods for the entire range of natural gas compositions normally experienced from producing reservoirs in Alberta.

- Pitzer et al[4] with Wichert-Aziz[5] sour gas corrections
- Redlich-Kwong[6,5] with Wichert-Aziz[5] sour gas corrections
- Dranchuk, Purvis, Robinson[7] with Wichert-Aziz sour gas corrections
- Dranchuk, Abou-Kassam[8] with Wichert-Aziz sour gas corrections
- Hall, Yarborough[9,10] with Wichert-Aziz sour gas corrections
- Standing-Katz [11,14] charts with Wichert-Aziz sour gas corrections

With the exception of the last method, which is graphical in nature, all of these procedures are applicable to the computer. As the availability of adequate computing power and memory is no longer the problem it once was, it is expected that the compressibility factor will be calculated at least once for each gas chart. Flow computers and other automated measurement systems used for gas measurement should calculate and update the compressibility factor at frequent intervals. These intervals will be set according to variations in the operating conditions of pressure and temperature and will be reviewed when the automated measurement system is approved.

As a general reference, Wichert[5,12] and Takacs[13] provide comparisons of methods of calculating compressibility and evaluate each for its applicability to the computer.

The Board will consider applications to use methods of calculating gas compressibility other than the ones mentioned above. A suitable reference and comparisons to one of the above approved methods, or to experimental results, should be provided to support any proposed alternative method.

It is expected that all gas flow calculations will be made using the latest edition of ANSI/API 2530 with compressibilities calculated by one of the accepted methods. These changes must be implemented by 1 October 1987. After this date, calculations made using the NX-19 Method will not be accepted. We believe that this deadline will provide industry with sufficient time to make the necessary adjustments.

Any questions with regard to the calculation of gas flows and compressibility may be directed to the Development Department at 297-8321.

2 PHYSICAL PROPERTIES OF NATURAL GAS COMPONENTS

The Board is aware that some companies are using, either directly or in computer routines, an out-of-date list of physical properties for natural gas components titled "Standard Values for Gas Analysis Calculations". This list was issued by the Board in or about 1973. The Board currently adopts the physical properties contained in the most recent edition of the Gas Processors Suppliers Association (GPSA) SI Engineering Data Book[14]. Please investigate to see if you are making use of the out-of-date list and, if necessary, update your data. While the use of the out-of-date physical property values is not likely to have caused significant errors, the GPSA SI values should be used for all future calculations.

Any questions related to Physical Properties of Natural Gas Components may be directed to the Board's Gas Department at 297-8506.

ENERGY RESOURCES CONSERVATION BOARD

Bellows

L. A. Bellows
Board Member

REFERENCES

1. American National Standards Institute/American Petroleum Institute 2530, 1985. "Orifice Metering of Natural Gas".
2. American Gas Association Transmission Measurement Committee Report No. 8, 1986. "Compressibility and Supercompressibility for Natural Gas and Other Hydrocarbon Gases".
3. American Gas Association Par Research Project NX-19, 1962. "Manual for the Determination of Supercompressibility Factors for Natural Gas".
4. Pitzer, K.S., Lippman, D.Z., Curl, R.F., Huggins, C.M., and Petersen, D.E., "The Volumetric and Thermodynamic Properties of Fluids II. Compressibility Factor, Vapour Pressure and Entropy of Vapourization". Journal of A.C.S., Vol. 77, No. 13, July 1955.
5. Wichert, E., and Aziz, K., "Calculate Z's for Sour Gases", Hydrocarbon Processing, Vol. 51, May 1972, pp 119-122.
6. Redlich, O., and Kwong, J. N.S., "On the Thermodynamics of Solutions. V An Equation of State. Fugacities of Gaseous Solutions", Chem. Rev. 44, 1949, pp 233-244.
7. Dranchuk, P.M., Purvis, R.A., Robinson, D.B., "Computer Calculation of Natural Gas Compressibility Factors Using the Standing and Katz Correlation". Institute of Petroleum Technical Series No. 1, IP 74-008, 1974
8. Dranchuk, P.M., Abou-Kassam, J.H., "Calculation of Z Factors for Natural Gases Using Equations of State". The Journal of Can. Pet. Technology, Vol. 14, No. 3, July-Sept. 1975, pp 34-36.
9. Hall, K.R., and Yarborough, L., "A New Equation of State for Z Factor Calculations". The Oil and Gas Journal, June 18, 1973, pp 82-92.
10. Yarborough, L., and Hall, K.R., "How to Solve Equation of State for Z-Factors". The Oil and Gas Journal, February 18, 1974, pp 86-88.
11. Standing, M.B., and Katz, D.L., "Density of Natural Gases". Petroleum Transactions AIME, Vol. 146, 1942, p 140.
12. Wichert, E., "Z Factor Calculation for Sour Gases", presented at P.I.T.S. Seminar, October 8-9, 1986.
13. Takacs, G., "Comparisons Made for Computer Z-Factor Calculations". The Oil and Gas Journal, December 20, 1976, pp 64-66.
14. Gas Processors Suppliers Association, 1980. "SI Engineering Data Book". (Note: A new edition of the GPSA Data Book is to be published in 1987.).

AL.1.151

CANADIANA
C2
APR 15 1987

ERCB

Energy Resources
Conservation Board

640 Fifth Avenue SW
Calgary, Alberta
Canada T2P 3G4

Informational Letter IL 87-2

TO: All Oil and Gas Operators
All Crude Oil Shippers
All Crude Oil Pipelines

8 April 1987

On 2 March 1987 the Board agreed to modify the existing prorationing system, on a trial basis, to allow for unfettered negotiation between producers and buyers of crude oil. The complete details of the new program are outlined in Interim Directive ID 87-1.

Consistent with that program, an industry/ERCB/APMC Task Force has met all feeders and extraprovincial oil pipelines in Alberta to develop a logistics sequence designed to act as a timeline and checklist for its implementation. It details the actions that must be taken by the ERCB, shippers, producers, and pipeline operators in the period 25 April - 30 June to ensure a smooth transition to the modified proration plan. A copy of the sequence is shown in Appendix A.

Under the modified proration plan, only contracted "initial and other" production covered by a verified notice of shipment and with a verified destination may enter any pipeline system; non-contracted volumes will not be shipped. The Board believes that a reasonable procedure to verify notice of shipment volumes has been developed by the Task Force and should be adhered to. Verification is necessary to ensure that all crude oil production is properly contracted and covered by notice of shipment. In addition, it provides for a timely and accurate accounting of the royalty oil produced for the APMC. Details of the procedure, entitled "Guidelines for Forecasting Crude Oil Deliveries", are attached as Appendix B. The logistics sequence and the guidelines for forecasting crude oil deliveries were reviewed by the committee to link the terminology and timing with the reporting sequence. Definitions of abbreviations and terms used are outlined as Appendix C. Note that this Informational Letter focuses on the sequence of events necessary for June production. An identical schedule with appropriate changes in dates to allow for public holidays and weekends will apply for all future months of production.

The Board believes that the success of the modified proration plan depends largely on good communication between the Board, producers, pipelines, and shippers. Failure by any one party to carry out its functions as outlined here may result in the unnecessary shut-in of production. The Board will monitor the implementation and direct the feeder pipelines to take corrective action if the information required is not provided.

Any questions relating to the Logistics Sequence and the Guidelines for Forecasting Crude Oil Deliveries should be addressed to the ERCB Economics Department: John Newton, Manager (403-297-2397), Ray Towle (403-297-8578), or Bill Oancia (403-297-3491).

ISSUED AT Calgary, Alberta, on 8 April 1987.

F. J. Mink
Board Member

attachments

APPENDIX A

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Any questions relating to the Allocation Sequence and the Guidelines for Forecasting Gross Oil Deliveries should be addressed to the ERCB Economics Department: [illegible], Manager (403-297-2397), [illegible] (403-297-8474), or [illegible] (403-297-3501).

DATED at Calgary, Alberta, on 8 April 1987.

[illegible] Bick
Board Member

Attachments

IMPLEMENTATION OF MODIFIED PRORATION PLAN
LOGISTICS SEQUENCE

DATE 1987	EVENT
27 April	- IP Order issued by ERCB for June production.
30 April	- Shippers provide delivery forecast to IPL for July/August/September period for linefill purposes. Shippers provide update of June forecast. - Working Interest Owners conclude negotiations on 30-day evergreen contracts to be effective 1 June and notify the Operator responsible for production accounting, who then provides Feeder Pipeline Connected Facility Operator (including Truck Terminal Operators and Pipelines Connected to Feeder Pipelines) with the Forecast of Crude Oil Deliveries (Form A). These forecasts are due by noon 5 May.
6 May	- IPL and TMPL advise Shippers of 30 April actual linefill position. - If a Shipper is under linefill, then either buy linefill from a Shipper who is over linefill on 30 April, or get coverage from a Shipper who is over linefill on 30 April. Purchase or coverage to be consistent with type of crude oil being shipped. - If a Shipper is over linefill, then either sell linefill to a Shipper who is under linefill on 30 April, or cover a Shipper who is under linefill on 30 April. Sale or coverage to be consistent with type of crude oil being shipped.

continued

6 May - Objective is that all Shippers are on linefill by 31 May.

7 May - IPL, TMPL, or Shippers start limiting receipts or deliveries to be on linefill for 31 May if corrective action listed above has not already been taken.

8 May - Feeder Pipeline Connected Facility Operators (including Truck Terminal Operators and Pipelines Connected to Feeder Pipelines) provide aggregated Forecast of Crude Oil Deliveries (Form A) for June to the Feeder. This information must be to the feeder systems by noon.

- Feeder Pipeline Connected Facility Operators and Producers delivering to Truck Terminals provide Shippers, including the APMC, with the Forecast of Crude Oil Deliveries to Shippers (Form B) for June.

11 May - Shippers update TMPL delivery forecast for 13 months starting with June.

- IPL provides prescribed linefill requirements to Shippers for July/August/September period. Shippers to be on a linefill by 30 June.

13 May - Feeders advise Shippers, including the APMC, of stream volume aggregated from the Forecast of Crude Oil Deliveries received on 8 May.

15 May - Shippers file IPL, TMPL, and Rangeland Notices of Shipment for June deliveries and receipts, recognizing linefill requirements.

- Shippers file Notice of Shipment with Feeders for June.

- Rangeland Pipeline provides Forecast of Crude Oil Deliveries (Form A) to Texaco Pipeline.

continued

15 May - Shippers file ERCB nominations for June.

19 May - Feeders advise Shippers of discrepancies in Notice of Shipment. Shippers take action to reconcile the Forecast of Crude Oil Deliveries (Form A) for June to the Notice of Shipment.

20 May - All discrepancies between Feeders, IPL, TMPL, and Shippers should be reconciled by this time. The objective is to verify supply prior to apportionment.

- IPL and TMPL confirm June deliveries to Shippers, and apportionment, if necessary.

22 May - IPL and TMPL advise Feeders of expected June receipt volumes by Shipper.

- Working Interest Owners conclude negotiations on spot contracts to be effective 1 June and notify the Operator responsible for production accounting, who notifies the Feeder Pipeline Connected Facility Operator (including Truck Terminal Operators and Pipelines Connected to Feeder Pipelines).

- Notices of Shipment revised by Shippers.

25 May - Feeder Pipeline Connected Facility Operators (including Truck Terminal Operators and Pipelines Connected to Feeder Pipelines) provide revised Forecast of Crude Oil Deliveries (Form A) for June to the Feeders.

- Notices of Shipment revised by Shippers.

- IP Order issued by ERCB for July production.

26 May	- Feeders finalize June daily delivery schedules with IPL, TMPL, and Edmonton refineries.
28 May	- Feeders advise those Feeder Connected Facility Operators who cannot produce to forecasted level due to lack of verified Notices of Shipment.
	- Producers seek alternate Purchaser.
	- Shippers update delivery forecast to IPL for July/August/September period.
29 May	- Operators responsible for production accounting provide Feeder Pipeline Connected Facility Operator (including Truck Terminal Operators and Pipelines Connected to Feeder Pipelines) with the Forecast of Crude Oil Deliveries (Form A) for July.
	- These are due by noon 5 June.
1 June	- Feeders that do not have a verified Notice of Shipment for June production cannot accept the crude oil.
	- Feeders hold connected facilities to rateable production levels equal to verified deliveries out of their system.
5 June	- IPL and TMPL advise Shippers of 31 May actual linefill position.
	- If a Shipper is under linefill, then either buy linefill from a Shipper who is over linefill on 31 May, or get coverage from a Shipper who is over linefill on 31 May. Purchase or coverage to be consistent with type of crude oil being shipped.

continued

5 June - If a Shipper is over linefill, then either sell linefill to a Shipper who is under linefill on 31 May, or cover a Shipper who is under linefill on 31 May. Sale or coverage to be consistent with type of crude oil being shipped.

- Objective is that all Shippers are on linefill by 30 June.

8 June - IPL, TMPL, or Shipper start limiting receipts or deliveries to be on linefill for 30 June if corrective action listed above has not already been taken.

- Feeders shut-in production of offending Shippers.

- Feeders inform Shippers of major rateable production differences versus Notice of Shipment after first ticket cut.

- Shippers and Pipelines take corrective action.

- Feeder Pipeline Connected Facility Operators (including Truck Terminal Operators and Pipelines Connected to Feeder Pipelines) provide aggregated Forecast of Crude Oil Deliveries (Form A) for July to the Feeders. This information must be to the Feeder by noon.

- Feeder Pipeline Connected Facility Operators, and Operators delivering to Truck Terminals, provide Shippers, including the APMC, with the Forecast of Crude Oil Deliveries to Shippers (Form B) for July.

CYCLE CONTINUES SAME AS MAY

1-30 June - Uncontracted shut-in production can still be sold if a Shipper and pipeline capacity are available. Forecasts of Crude Oil Deliveries (Form A) are revised by Producers and Notices of Shipment are revised by Shippers. Both documents must be verified by the Feeders before crude oil is allowed to be produced.

APPENDIX B

GUIDELINES FOR FORECASTING CRUDE OIL DELIVERIES

The ERCB announcement on 2 March establishing a Modified Proration Plan reaffirms the requirement for accurate and timely production forecasting to the Feeder Pipelines. The "Forecast of Crude Oil Deliveries" will not replace the legal obligation of the crude oil purchase contract or the Notice of Shipment but will provide a mechanism to minimize receipts of uncontracted production into the feeder system.

"Forecast of Crude Oil Deliveries" (Form A) outlines the required data to be provided to Feeder Pipelines. Form B outlines data to be provided to Shippers. Xeroxed copies of these forms may be used by the reporting companies as needed. Computer-generated forms are acceptable as long as the data is consistent with the requirement. A flow chart illustrating the intent of the procedure is also attached. The following guidelines establish the appropriate procedures and timetable for compiling this information:

1. Communications both written and verbal referred to in this guideline will be made in consideration of confidentiality between buyer and seller. Good business practice will prevail.

2. The Feeder Pipeline Connected Facility Operator must report aggregate production information to the Feeder Pipeline on Form A and to each specific Shipper, including the APMC, on Form B.

3. Producers, using Form A, will report production information to Truck Terminals, Pipelines Connected to Feeder Pipelines, and the Operator of the producing battery or other facility injecting their crude oil into a Feeder Pipeline.

4. Producers reporting crude oil production to Truck Terminals on Form A must report corresponding production to the appropriate Shipper, including the APMC, on Form B.

5. In the case of initial and other contracted oil production, the data outlined in the forecast must be received by the appropriate Feeder Pipeline not later than 10 working days following issuance of the ERCB's IP Order. This will normally be the 5th working day of the month prior to the month of production. Producers reporting to Truck Terminals, Pipelines Connected to Feeder Pipelines, and the Feeder Pipeline Connected Facility Operators must report by the 3rd working day of the month prior to the month of production.

6. Information concerning additional production (sales) secured after submitting the forecast must be forwarded to the feeder system as soon as volumes have been identified and contracted.

7. The Feeder Pipeline will then compare the Feeder Pipeline Connected Facility Operator's forecast with Notices of Shipment received from the Shipper.

8. Where a significant discrepancy between the forecast of crude oil deliveries and Notice of Shipment occurs, the Feeder Pipeline will contact the appropriate Shipper. The determination of what volume constitutes a significant amount may vary depending upon prevailing circumstances and will be at the discretion of the Feeder Pipeline.

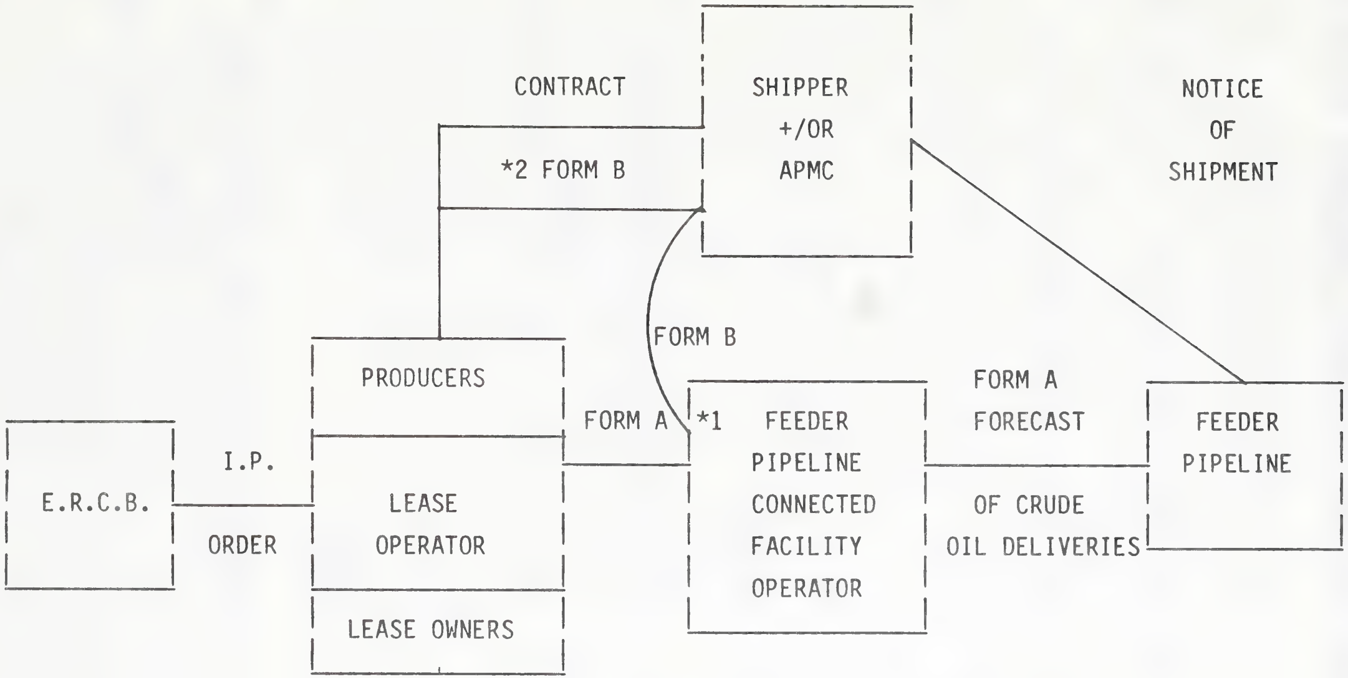
9. The Shipper must take appropriate action. This may include revision of the Notice of Shipment or discussion of contractual terms with producers. The Feeder Pipeline will be required to shut-out production that is not verified by a Notice of Shipment.

10. Reporting of trucked volumes will be the responsibility of the Truck Terminal Operator at the appropriate injection point. Truck terminals not operated by the Feeder Pipeline will require separate notice from both Shipper and Producer. The Truck Terminal Operator will be required to shut-out production that is not verified by a Notice of Shipment.

11. The assumption of rateability is inherent in the foregoing. Producing entities that are incapable of rateability, or benefit from unrateability, must negotiate unrateable deliveries with the receiving Feeder Pipeline.

12. The forecast of crude oil deliveries will be updated by Operators on a monthly basis to account for changes in purchaser information and changes in production due to pool declines, additional or new wells, and facility turnarounds. In some instances (eg. where volumes are not deemed significant by the Feeder Pipeline) production does not vary significantly on a monthly basis and, as such, the revised forecast of crude oil deliveries may not be required by the Feeder Pipeline. However, it remains the responsibility of the Feeder Pipeline Connected Facility Operator to ensure that the Feeder Pipeline has the appropriate data in hand to perform a monthly comparison.

REQUIRED INFORMATION FLOW FOR FORECAST OF CRUDE OIL DELIVERIES



*1 INCLUDES:
  1. CONNECTED BATTERIES
  2. CONNECTED PIPELINES
  3. TERMINALS

*2 PRODUCER FILES FORM B ONLY WHEN DELIVERING CRUDE OIL TO A TRUCK TERMINAL OR PIPELINE CONNECTED TO A FEEDER PIPELINE.

Form A

FORECAST OF CRUDE OIL DELIVERIES
To Truck Terminals, Pipeline Connected Facilities and Pipelines

OPERATOR -	
ADDRESS -	
REPRESENTATIVE -	
TELEPHONE -	ERCB OPERATOR CODE -

MONTH : ____________ 19 __
Amendment ☐
Date : ____________

Volumes in m^3

Field Delivery Point :

PIPE LINE	TRUCK TERM	OPER	FIELD	BATTERY	BATTERY DESCRIPTION

SHIPPER	INITIAL PROD.	OTHER PROD.
APMC (ROYALTY SHARE)		
TOTAL		
DELIVERY POINT TOTAL -		

Field Delivery Point :

PIPE LINE	TRUCK TERM	OPER	FIELD	BATTERY	BATTERY DESCRIPTION

SHIPPER	INITIAL PROD.	OTHER PROD.
APMC (ROYALTY SHARE)		
TOTAL		
DELIVERY POINT TOTAL -		

Field Delivery Point :

PIPE LINE	TRUCK TERM	OPER	FIELD	BATTERY	BATTERY DESCRIPTION

SHIPPER	INITIAL PROD.	OTHER PROD.
APMC (ROYALTY SHARE)		
TOTAL		
DELIVERY POINT TOTAL -		

Form B

FORECAST OF CRUDE OIL DELIVERIES TO SHIPPERS

OPERATOR -	
ADDRESS -	
REPRESENTATIVE -	
TELEPHONE -	ERCB OPERATOR CODE -

MONTH : ____________ 19__
Amendment ☐
Date : ____________

Volumes in m^3

Field Delivery Points: **Deliveries To The Account Of - SHIPPER :** ____________ **ERCB Code:** ______

PIPE LINE	TRUCK TERM	OPER	FIELD	BATTERY	BATTERY DESCRIPTION	INITIAL PROD.	OTHER PROD.
					TOTAL		
						PIPELINE TOTAL -	

PIPE LINE	TRUCK TERM	OPER	FIELD	BATTERY	BATTERY DESCRIPTION	INITIAL PROD.	OTHER PROD.
					TOTAL		
						PIPELINE TOTAL -	

PIPE LINE	TRUCK TERM	OPER	FIELD	BATTERY	BATTERY DESCRIPTION	INITIAL PROD.	OTHER PROD.
					TOTAL		
						PIPELINE TOTAL -	

APPENDIX C

ABBREVIATIONS AND TERMS

1. APMC - Alberta Petroleum Marketing Commission.

2. Apportionment - The capacity allocation process which occurs when the Notices of Shipment filed by Shippers are in excess of the pipeline's capacity to make physical delivery.

3. Coverage - When one Shipper applies the volume of crude oil over its prescribed linefill against the volume of crude oil that another Shipper is under its prescribed linefill.

4. Delivery Schedules - A forecast of daily volumes to be delivered from one pipeline to either a refinery or connected pipeline.

5. ERCB - Energy Resources Conservation Board.

6. Feeder or Feeder Pipeline - Crude oil system which transports crude oil from pipeline connected facilities, truck terminals, or other pipelines to Edmonton.

7. Feeder Pipeline Facility Operator - Any company responsible for operating a production entity which is connected to a Feeder Pipeline.

8. Form A Forecast of Crude Oil Deliveries - Report generated by Producers, Feeder Pipeline Connected Facility Operators, Truck Terminal Operators, and Pipeline Operators connected to the Feeder Pipelines.

9. Form B Forecast of Crude Oil Deliveries to Shippers - Report generated by Feeder Pipeline Connected Facility Operators and Producers delivering crude oil to trucking terminals indicating production volumes and buyer (Shipper).

10. IPL - Interprovincial Pipeline.

11. IP Order - Initial Production Order which replaces the MD (Market Demand) Order.

12a. Linefill or prescribed Linefill - The volume of crude oil a Shipper must provide in order to make deliveries on a continuous basis. Applies mainly to the Interprovincial and Trans Mountain Pipelines.

12b. On Linefill - When the physical volume and the prescribed linefill are equal.

12c. Over Linefill - When the actual volume of crude oil a Shipper is carrying in the pipeline is more than the prescribed linefill required to make deliveries.

12d. Under Linefill - When the actual volume of crude oil a Shipper is carrying in the pipeline is less than the prescribed linefill required to make deliveries.

13. Notice of Shipment - The legal tendering document filed by Shippers to pipelines indicating input locations, crude oil volumes, and delivery locations for crude oil being transported.

14. Operator - Any company responsible for operating production entities.

15. Pipeline Connected Feeder Pipeline - Gathering pipeline operated by a company other than the Feeder Pipeline Company and connected to the Feeder Pipeline.

16. Rateable Production - Total expected monthly production volume divided by the number of days in the month.

17. Shippers - Companies owning and moving crude oil in a pipeline.

18. Spot Contract - Agreement between a seller and buyer for a fixed volume over a fixed time period (usually 1 month).

19. Term or Evergreen Contract - Agreement between Producer and purchaser (Shipper) which will continue until cancelled.

20. Ticket Cut - The actual metered volume delivered from Feeder Pipelines to IPL, TMPL, and Edmonton refineries by Shipper.

21. TMPL - Trans Mountain Pipe Line Company Ltd.

22. Working Interest Owner - Any company owning marketable crude oil production.

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CANADIANA
MAR 13 1987

ERCB

**Energy Resources
Conservation Board**

640 Fifth Avenue SW
Calgary, Alberta
Canada T2P 3G4

Informational Letter

IL 87-3

To: All Oil, Gas, and Oil Sands Operators

4 March 1987

SUSPENDING APPLICATION OF WATER-OIL RATIO PENALTY SCHEDULES

This letter supersedes Informational Letter IL-OG 74-9 issued on 7 June 1974.

Pursuant to a recommendation by the Board/Industry committee concerned with administrative procedures for oil production allowable controls, the Board has decided to suspend the application of water-oil ratio (WOR) penalty provisions commencing on 1 April 1987. The committee concluded that this step would eliminate an unnecessary accounting control measure and the Board agrees with that conclusion. Though it would not anticipate an ongoing need, the Board would be prepared to consider applications by industry to apply WOR penalty provisions in a particular case, if that were found necessary to accommodate conservation or equity problems.

In accordance with its continuing objective of environmentally sound field management practices, the Board will require operators to continue to dispose produced water to approved subsurface disposal systems. For similar reasons, it is necessary that operators continue to maintain reliable field measurements and accurate records of monthly quantities of produced water in accordance with ERCB reporting requirements.

N. A. STROM
Board Member

(2)
MAY - 4 1987

ERCB

**Energy Resources
Conservation Board**

640 Fifth Avenue SW
Calgary, Alberta
Canada T2P 3G4

Informational Letter IL 87-4

To: All Oil and Gas Operators

23 April 1987

REVISED NEW OIL WELL PRODUCTION RATE ADMINISTRATION

The Energy Resources Conservation Board/Industry Committee concerned with administrative procedures for oil production allowable controls recently concluded that there were changes to the new well "test period" administration that could provide greater flexibility for obtaining good early production data from new wells and simplify administrative procedures. The proposed changes include a four-producing-month period during which a provisional maximum rate limitation (MRL) of at least 20 cubic metres per day (m^3/d) would be assigned to each new well.

The ERCB has adopted the proposed changes and effective 1 June 1987, the administration of the new oil well production period will be revised as per Attachment 1. Questions may be directed to the ERCB's Oil Department at 297-8566 or Accounting Department at 297-2565.

N. Strom

N. A. Strom
Vice Chairman

ATTACHMENT 1

- The existing new well test period and 500 m^3 test allowance are replaced by the following administration, effective 1 June 1987.
- The revised new oil well production period (NOWPP) will consist of the first four months in which production is reported, commencing with the first month in which there is clean oil production, and will automatically expire one year from the on production month.
- During the four-month NOWPP, the provisional maximum rate limitation (new well rate) assigned to the well will be the greater of 20 m^3 per day or the reserve-based MRL (as per PRL formula).
- If at some time before the NOWPP expires, the well is added to a pool with an assigned MRL per well higher than its new well rate, the higher MRL will be applicable for the remainder of the period.
- As previously, the NOWPP will be considered as a single production accounting period for overproduction administration except as noted below.
- New wells completed within a subsisting PSU, Block, or Project are not eligible for the NOWPP.
- The NOWPP will be applicable only to the first well drilled in a subsisting drilling spacing unit.
- Gas-oil ratio (GOR) penalty will not be applied during the NOWPP.
- Off-target penalty, where applicable, will be applied against the new well rate.
- The GOR of the first producing month after the expiration of the test period will be used to determine the penalty factor for that month and the following two months.
- Wells that flare gas in excess of 500 10^3 m^3 in any month during the NOWPP must be shut in immediately and the continuance of the NOWPP discussed with the Board.
- Production during the NOWPP will be exempt from any prorationing; however, an initial production level will be assigned.

AL. 1.151

JUN 25 1987

ERCB

Energy Resources
Conservation Board

640 Fifth Avenue SW
Calgary, Alberta
Canada T2P 3G4

Informational Letter

IL 87-5

19 June 1987

TO: ALL OIL AND GAS OPERATORS

1987 ADMINISTRATION FEE ON WELLS AND OIL SANDS PROJECTS

The Board has established the 1987 Administration Fee at 93 per cent of the rate specified in sections 16.070 and 16.080 of the Oil and Gas Conservation Regulations. Invoices will be mailed on 6 July 1987.

In 1986 there was no reduction factor applied to the fee schedule as a result of a decision that government and industry would jointly fund the construction of a Petroleum Industry Training Centre with the industry share being obtained by an addition to each of the 1986 and 1987 Administration Fees. This year's fee would have been lower had it not been for that commitment of funds.

As in past years, where the operation of a well is undertaken by a contract operator, the fee will be directed to the owner rather than the operator upon the written request of the owner. This request should include a complete description of the well and the name of the operator, and should be addressed to the attention of Mr. D. Batten.

R. T. Bording
Manager
Accounting

CANADIANA
JUL 13 1987

ERCB

Energy Resources
Conservation Board

640 Fifth Avenue SW
Calgary, Alberta
Canada T2P 3G4

Informational Letter

IL 87-6

TO: All Oil and Gas Operators

3 July 1987

ASSESSMENT OF GAS PROCESSING CAPACITY REQUIREMENTS
WEST EDMONTON AREA

In 1983, the ERCB held an inquiry to review plans for both energy resource and urban developments in the West Edmonton area. Respecting the latter type of development, a liaison committee made up of representatives of the City of Edmonton, the Edmonton Metropolitan Regional Planning Commission, and the ERCB was formed to assist co-ordination of activities in the area.

Because of initiatives being taken respecting enhanced oil recovery and related gas processing in the area, the Board has recently conducted a preliminary assessment of the energy resources of the area. The results of this assessment show that some additional gas processing capacity may be warranted in this area. The intent of this informational letter is to request information from crude oil and gas owners in the area on established gas reserves, potential reserves, and potential development, particularly the need for gas processing capacity over the next 10 years. The intent is to generate the best estimates of gas supply in order to avoid duplication of facilities within the planning area to the extent practical.

The Board has defined a study area identified on the attached figure and requests that all gas and crude oil owners within the study area provide the following up-to-date information:

(1) estimates of your proven remaining reserves of solution gas, associated gas, and non-associated gas,

(2) gas production forecasts (covering at least the next 10 years) based on your proven reserves and potential reserves,

(3) a representative gas analysis, including the H_2S concentration, for each reserve included in item 2,

(4) a forecast of processing capacity required to handle that portion of your gas you believe could be economically transported to the existing processing facilities, and

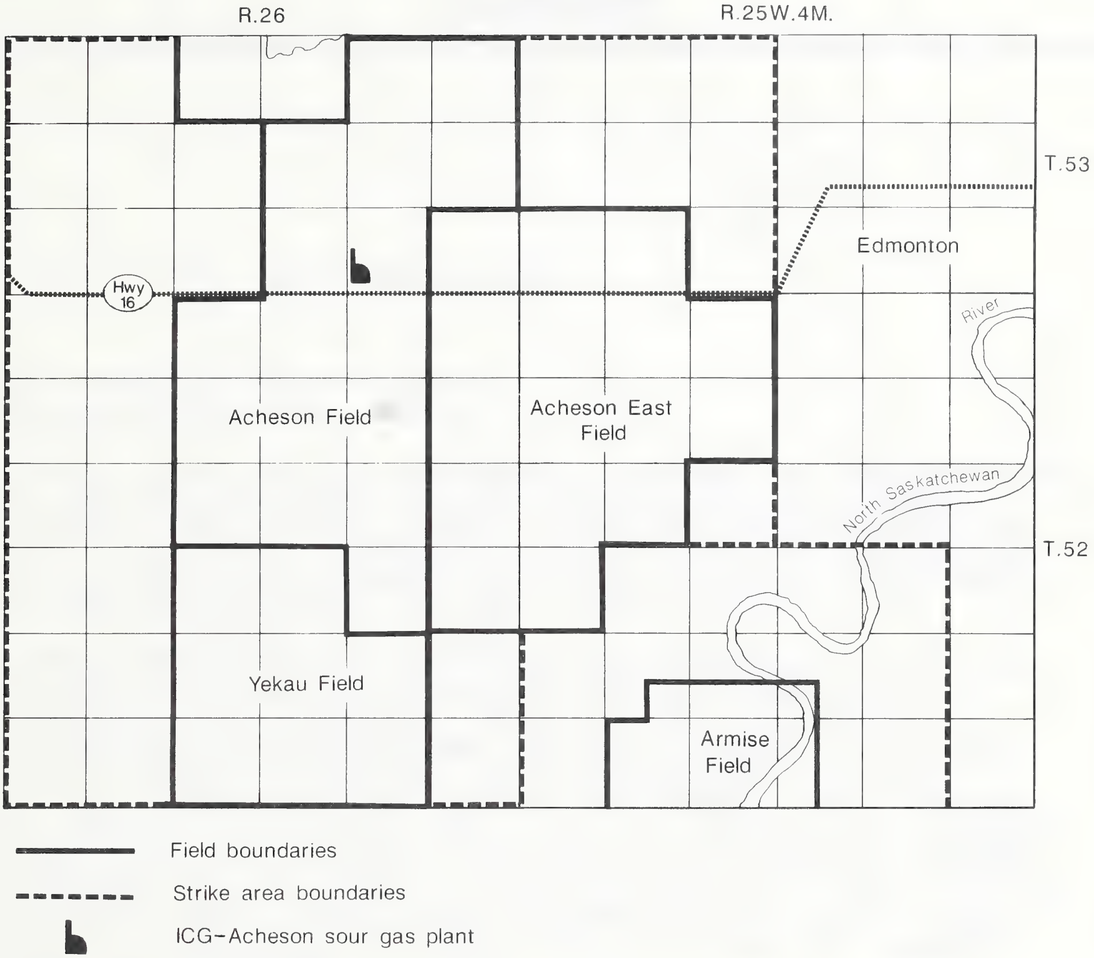
(5) any plans for processing facilities or arrangement for processing.

As mentioned earlier in this informational letter, gas processing and enhanced oil recovery initiatives are being taken at this time. Any owner of oil or gas reserves in the area who wishes to be included in the consideration of gas processing capacity requirements over the next few years should make its interests known to the Board at this time. This information will be summarized and made available to ICG Resources Ltd. and Chevron Canada Resources Limited, the two companies which have expressed an interest to the Board for processing of gas in the area. The Board is prepared to keep the individual company submissions confidential if requested to do so. We expect to make the Board's summary available to any other interested party.

We request that the information be compiled and submitted to the Board's Gas Department by no later than 31 July 1987.

If you have any questions, please contact Mr. Bill Schnitzler at 297-7322.

F. J. Mink
Board Member



WEST EDMONTON STUDY AREA

IL 87-6
ERCB
Amendment

AL.1.727

CANADIANA
C 2
AUG 11 1987

ERCB

Energy Resources
Conservation Board

640 Fifth Avenue SW
Calgary, Alberta
Canada T2P 3G4

Informational Letter

IL 87-7

30 July 1987

To: All Oil, Gas, and Oil Sands Operators

Need for Prompt and Accurate Filing of Daily Drilling and Servicing Records

The Board, in reviewing the recommendation of an internal task force on processing of Daily Operations Reports, has determined that there are increasing problems with tardy filing and incomplete records being submitted to the ERCB. One adverse impact is the increased burden on ERCB staff to follow-up delinquent situations. Another very serious adverse effect is the impact on the integrity of the ERCB data base which is used extensively by industry.

The Board wishes to overcome these problems and asks that all operators review their internal practices and take corrective steps as needed. At the same time the Board will be amending the legislation, particularly Alberta Reg. 151/71 section 12.010, to make it more convenient for operators to check off and submit the required information. The attached schedule (Attachment 1) lists the drilling and servicing information that should be filed. Attachment 2 is a draft form of a completion report reflecting the kind of well completion information that should be filed any time that a well is completed or serviced. The Board will make copies of this draft form available at its Maps and Publications area for use by industry in submitting Daily Operations Reports. However, it will accept equivalent company completion/servicing forms while experience is gained with the new form.

The need for prompt, concise, and complete reports is stressed.

C. J. Goodman

C. J. Goodman
Board Member

attachments

Attachment 1

WELL DATA	Well name, location, contractor, rig number and K.B. elevations.
BOP AND AIR INTAKE SHUT-OFF TESTS	BOP Tests: Details of all BOP and choke manifold pressure tests (including equipment tested), test duration, initial and final test pressures. Details of daily mechanical tests (including equipment tested).
	Air Shut-Off Tests: Details of all predrill-out and weekly shutdown of mechanicl tests.
	BOP Drills: Details of all predrill-out and weekly drills, including mode of operation (drilling, tripping or out-of-the-hole), equipment used and training requirements.
DRILLING INFORMATION	Spud date, bit size, depth of hole at beginning or end of each tour, deviation surveys, whipstock-setting depths, directional surveys, fishing details, total depth, rig release date.
DRILLING OCCURRENCES	Lost Circulation: Depth and interval, density and volume of fluid lost, amount and types of materials used.
	Gas Kick: Depth, shut-in and circulating pressures, influx volume, control procedures.
	Water Flow: Depth, pressures, volume, control procedures.
FORMATION TESTS	Drill-Stem Test: Test number, interval, valve open time, gas, oil or water to surface times and flow rates, recovery.
	Wireline Tests: Test number, depth, duration, recovery.
	Flow Tests: Depths, recoveries, fluid levels, flow rates.
	Swab Tests: Depths, recoveries, fluid levels.
CORES	Core number, interval, size, recovery.
	Side-Wall Core: Individual depths.
LOGS	Types of logs run and corresponding intervals.
ABANDONMENT OR PLUG BACK	Plug number, interval, plug downtime, amount of cement and additives, slurry weights, felt at (time and depth) drilled-out depth.
	Bridge Plugs: Setting depth, pressure test details, amount of cement in cap.
	Surface Abandonment: Details, including cutting of casing, cement cap or welding on plate.
CASING AND LINERS	Size, setting depth, liner top, weight, grade, collar type, new or used (if mixed string is run, this information is required for each section).
	Casing Integrity Tests: Once every thirty days, after drilling through shoe, type of test (pressure or log), test results.
CASING CEMENTING	Amount and type of cement and additives, slurry weight, slurry volume, returns to surface, cement top (if determined).
COMPLETION	Packers: Type, setting depth.
	Perforations: Interval, type, number, if notched - quantities of sand, and fluid and treating pressure.
	Acidizing: Interval, type, concentration and volume of acid and additives, wash or squeeze, feed rates and pressures.
	Squeeze Jobs: Interval amounts and types of materials squeezed, feed rates and pressures.
	Fracturing: Type, quantity and size of propping agents, type and volume of carrier, additives, type and quantity of plugging agents, feed rates and pressures.

Attachment 2

COMPANY:

WELL NAME

UNIQUE WELL IDENTIFIER

LE	LS	SC	TWP	RG	W	M	E

CONTRACTOR

RIG NO.

DATE

REPORT NO.

OPERATIONS

TIME		ELAPSED TIME	DETAILS OF OPERATIONS AND REMARKS	MUD RECORD
From	To			
				Time
				Mass kg/m^3
				Vis/Secs
				PV/YP
				Gel Str.
				Wtr Loss Cm^3
				pH
				Solids %
				Type Fluid

PERFORATION

INTERVAL PERF		Perf Type	Gun Type	Gun Size	Run Thru	Fluid Type	Fluid (M) In Hole	Shot Density /M	Surf Pres After Perf (KPa)	Hole Size MM	Tech nique	Depth Control	Perforating Company
From	To												

Perf Type
1. Jet
2. Bullet
3. Sand Notch
4. O-H

Gun Type
1. Expendable
2. Non-Expend
3. Oriented
4. Other

Run Thru
1. Tubing
2. Casing
3. Other

Fluid Type
1. Water
2. Trt. Wtr
3. Brine
4. Mud
5. Oil
6. Oil Mud
7. Dry
8. Acid
9. Other

Technique
1. Regular
2. Frac Placement
3. Limited Entry
4. Other

Depth Control
1. Wireline
2. Log
3. Other

SQUEEZING

INTERVAL		PACKER		AMT. CEMENT		SLURRY DENSITY	CEMENT TYPE AND ADDITIVES	ANNULUS FLUID		PRESSURE DATA			PERF CLR	PREFLUSH	
From	To	Depth	Type	Mixed	Reverse			Type	Press	Break-down	Max. Squeeze	Final Squeeze		Type	Vol

Packer Type
1. Drillable
2. Retrievable
3. Permanent

Fluid Type
1. Water
2. Treated water
3. Mud
4. Acid
5. Other

Perfs
1. No
2. Yes

LOGGING

Logged Interval		KIND OF SURVEY	LOGGING COMPANY
From	To		

PLUG BACK

PLUGGED INTERVAL		TYPE BRIDGE PLUG	SET ON 1. Well 2. Tubing	TYPE PLUGGING Material Used	TYPE CAP	CAP THICK M	DEPTH TO CAP M	HOW 1. Bail 2. Spot
From	To							

TESTING OIL

TIME Hrs	SWAB DEPTH M	PRESSURE kPa	CHOKE SIZE MM	FLUID REC M^3	ACC FLUID M^3	BASIC SED & WATER %	SALINITY PPM

TESTING GAS

TIME Hrs	PRESSURE kPa		FLOWING TEMP °C	SEPARATOR PRESSURE kPa	CHOKE SIZE MM	DIFF PRES kPa	RATE $10^3 m^3$	FLUID m^3
	Tubing	Casing						

FRACTURING

INTERVAL	ACID WASH		PRE-PAD		TREATING FLUID			ADDITIVE		PROPPANT		PRESSURES		RATE	ISIP
	Type	Vol	Type	Vol	Type	Vol	Conc	Name	Conc	Size	Vol	Break	Treating	M^3/min	MPa

ACIDIZING

INTERVAL	STAGE #	ACID			DIVERTANT	PRESSURES kPa					AVE INJ RATE
		Type	Vol	Conc		Breakdown	Max	Ave	ISIP	10 Min SI	

AL.1.151

CANADIANA
JUL 24 1987

ERCB

Energy Resources Conservation Board

640 Fifth Avenue SW
Calgary, Alberta
Canada T2P 3G4

Informational Letter

IL 87-8

To: ALL OPERATORS OF SOUR GAS
WELLS, PLANTS, AND PIPELINES

16 July 1987

EMERGENCY RESPONSE PLANS
FOR SOUR GAS FACILITIES

Sections 7.060 and 9.060 of the Oil and Gas Conservation Regulations and section 65 of the Pipeline Regulations set out emergency procedures requirements for sour gas processing plants, wells, and pipelines. The primary purpose of these procedures is to ensure public safety.

In this regard, the Board notes that the Canadian Petroleum Association has recently released a document dated April 1987 entitled "Guidelines for Preparation of Sour Gas Emergency Response Plans for Sour Gas and Oil Facilities", copies of which may be obtained from the Association's offices.

These Guidelines have been reviewed by the Board and found to be an acceptable standard, under normal circumstances, for the preparation and maintenance of emergency response plans. Therefore, the Board encourages all operators to use these Guidelines in the preparation of emergency response plans for new facilities. However, operators should bear in mind when preparing plans in accordance with these Guidelines that the Board may require more stringent or additional features to any proposed plan or may otherwise vary features of the Guidelines depending upon specific circumstances. The Board also encourages operators to refer to the CPA Guidelines when preparing annual updates of existing plans.

Further information regarding this matter can be obtained from the Board's Environment Protection Department at 297-3185 or 297-3698.

C. J. Goodman

C. J. Goodman
Board Member

AL.1.151

CANADIANA
AUG 17 1987

ERCB

Energy Resources Conservation Board

640 Fifth Avenue SW
Calgary, Alberta
Canada T2P 3G4

Informational Letter

IL 87-9

6 August 1987

To: All Oil and Gas Operators

REVISED PROCEDURES FOR OIL PRODUCTION ALLOWABLE CONTROLS AND NEW OIL WELL PRODUCTION PERIOD

Administration of the revised procedures for oil production allowable controls adopted by the Energy Resources Conservation Board, effective 1 June 1987, have raised a number of questions within industry resulting in many queries to the Board. For clarification purposes, the following is a summary restatement of the administrative changes. This letter supersedes Interim Directive ID 86-1 and Informational Letter IL 87-4. Further questions may be directed to the Board's Oil Department at 297-8566 or the Accounting Department at 297-8345.

Overproduction Penalties

(1) Production within 10 per cent of the penalized MRL will be recognized as acceptable overproduction for purposes of operating flexibility.

(2) A 50 per cent overproduction penalty will be applied each month on production exceeding 110 per cent of the penalized MRL. The resulting cumulative overproduction may be retired by producing below the penalized MRL in subsequent months.

(3) In addition to (2) above, where the cumulative overproduction status of a production entity is more than 10 per cent of the penalized MRL for three consecutive months, an additional penalty of 20 per cent of the cumulative status at the end of the third consecutive month will be applied.

(4) The 20 per cent penalty identified in (3) will continue to be added for each consecutive month the cumulative status of the entity remains above 10 per cent of the monthly penalized MRL.

New Oil Well Production Period

(1) The revised new oil well production period (NOWPP) will consist of the first four months in which production is reported, commencing with the first month in which there is new oil production, and will automatically expire one year from the on-production month.

(2) During the NOWPP, the provisional MRL (new well rate) assigned to the well will be the greater of 20 m^3 per day or the reserve-based MRL (as per PRL formula).

(3) An operator, upon written notification to the Allowables Section, may have any shut-in month(s) within the NOWPP counted as producing month(s) to reduce the overproduction carried into the first month of normal MRL administration.

(4) If at some time before the NOWPP expires, the well is added to a pool with an assigned MRL per well higher than its new well rate, the higher MRL will be applicable for the remainder of the period.

(5) The NOWPP will be applicable only to the first well drilled in a pool in a subsisting drilling spacing unit.

(6) As previously, the NOWPP will be considered as a single production accounting period for overproduction administration.

(7) New wells completed within a subsisting PSU, block, or project are not eligible for the NOWPP.

(8) GOR, or where applicable WOR, penalties will not be applied during the NOWPP. Overproduction penalties will not be assessed during the NOWPP, but any overproduction incurred during this period must be retired.

(9) Off-target penalty, where applicable, will be applied against the new well rate.

(10) The GOR, or where applicable, the WOR of the first producing month after the expiration of the test period will be used to determine the penalty factor for that month and the following three months.

(11) Wells that flare gas in excess of 500 10^3 m^3 in any month during the NOWPP must be shut in immediately and the continuance of the NOWPP discussed with the Board. The Board would still require a review of the economic feasibility of gas conservation within 60 days of commencement of production as well as restricted flaring in environment-sensitive areas.

(12) The initial production level (IPL) during the NOWPP will be the production level as noted in the initial production order.

General

(1) The IPL is not an allowable and is therefore not subject to off-target, GOR, or WOR penalties.

(2) The IPL cannot be greater than the penalized MRL.

(3) Where the base MRL of a well, PSU, block or project, is subject to a GOR or, where applicable, a WOR penalty, the penalty factor shall be determined on the basis of production in the third last preceding month.

(4) Application of an off-target penalty to the MRL may reduce a well below its basic well rate but not normally below 5 m^3 per day. Off-target penalties apply from the on-production date of a well. In the case of single well pools, the off-target is not normally applied.

(5) Revisions to the Allowables Handbook will be published at a later date.

R. T. Bording
Manager, Accounting

AL.1.151

CANADIANA
AUG 17 1987

ERCB

Energy Resources Conservation Board
640 Fifth Avenue SW
Calgary, Alberta
Canada T2P 3G4

Informational Letter IL 87-10

TO: All Oil and Gas Operators
All Crude Oil Shippers
All Crude Oil and Condensate Pipelines

10 August 1987

MODIFIED PRORATION PLAN

The modified proration plan was introduced by the ERCB on a trial basis in June 1987.

Over the last two months an Industry/ERCB/APMC Task Force has been working with all feeders and extra-provincial oil pipelines in Alberta to implement the program described in Interim Directive ID 87-1 and Informational Letter IL 87-2.

The general consensus at this time is that the program has accomplished its objectives in most cases; however, additional commitment to the communications aspect is required to fine tune the information that is being provided to the pipelines.

The Task Force has revised both Form A and Form B based on the suggestions and recommendations it has received. The new forms are shown in Appendix A. Photocopies of the new forms should be used immediately to communicate any revisions for August and September production and to provide the initial forecasts for later months. Computer-generated forms will continue to be acceptable as long as the data is consistent with the requirement. Appendix A contains an explanation of the terms used on the new forms together with a description of the changes that have been made. The new forms and definitions will ensure a better understanding and description of crude oil and condensate production, thereby enabling shippers to fine tune the Notice of Shipment process.

The revised forms will serve to enhance the communications process. However, to ensure the success of the modified proration plan, producers, shippers, and pipelines must strive to improve the forecasts of crude oil and condensate deliveries.

During June and July, forecast volumes have exceeded actual production volumes by about 13 000 cubic metres per day. The result of this over-nomination is causing a loss in Interprovincial Pipe Line (IPL) capacity because IPL is not receiving the expected crude volumes required to maintain scheduled pumping rates. Once IPL has reduced its pumping rate the volumes lost cannot be made up later in the month, resulting in a net reduction in deliveries out of their system.

The Board and the Industry/ERCB/APMC Task Force believe that producers should now be in a position to know production capability and should recognize that the system will only work to the benefit of all participants if the forecasts are accurate.

The success of the program depends on accurate and timely communication between all parties. It is incumbent upon the producer and the shipper to ensure that forecasts reflect real production capability. The Board will continue to monitor the system and, together with the feeder pipelines, will take corrective action if the information required is not provided in an accurate and timely manner.

Any questions relating to these revised forecast requirements should be addressed to the ERCB Economics Department: John Newton, Manager (403-297-2397), Ray Towle (403-297-8578), or Bill Oancia (403-297-3491).

GJDeSorcy

G. J. DeSorcy
Chairman

attachments

APPENDIX A

FORM A - ALBERTA

Form A's should be sent to the location to which the crude oil or condensate is being delivered and not to the shipper.

DEFINITION AND DESCRIPTION OF TERMS

Operator: The party filling out the form, eg. Operator of:

- truck terminal
- cleaning plant
- pipeline connected facility
- pipeline connected to a feeder pipeline
- any producing facility requested to provide a forecast to the location receiving their production

Received From: The location that the party filling out Form A is reporting from, eg. Operator of:

- single well battery identifies the well (battery) location
- a multi-well battery identifies the battery location regardless of well ownership
- a pipeline connected facility identifies that facility
- a truck terminal identifies that terminal
- a cleaning plant identifies that plant

Delivered To: The location that the party filling out Form A is delivering to, eg. Operator of:

- well delivering to battery identifies battery location
- battery delivering to battery identifies receiving battery location
- location delivering to truck terminal or cleaning plant identifies truck terminal or cleaning plant
- location delivering to pipeline connected facility identifies pipeline connected facility
- pipeline connected facility or pipeline connected to feeder pipeline identifies receiving feeder pipeline

Shipper: The recognized owner of the production after it enters a truck terminal, cleaning plant, pipeline connected to a feeder pipeline, or feeder pipeline.

Segregated Condensate: Condensate which is segregated from crude oil and shipped as condensate.

FORM A - ALBERTA (Continued)

DESCRIPTION OF CHANGES

- ALBERTA has been included in the heading to eliminate confusion with the SASKATCHEWAN form.

- A Multi-page Block has been included at the top right-hand corner to facilitate operators of more than two connected facilities per pipeline.

- An amendment number (#) has been added to facilitate the pipleine recording process.

- Field delivery point has been divided into a received from and delivered to location. See page 1 for description of usage.

- The word "or" has been included to divide pipeline, truck terminal, and operator field and battery codes. The reason is self-evident in that production is received from or delivered to only one location; therefore, codes should only be inserted in the applicable block.

- In the Shipper description area, Royalty Share has been eliminated. The APMC do not need a breakdown of Royalty and contract oil; therefore, the first line will be total volumes for the APMC. Volumes will be Royalty only, or where producers sell all their production to the APMC, they will be a total of Royalty and contract volumes.

- Segregated condensate has been added to facilitate forecasting of condensate.

- A comments section has been included at the bottom of the form. Turnarounds, workovers, unrateable deliveries, and any other deviation from the normal delivery situation should be noted.

- The form in general has been expanded to facilitate keypunch input and includes all recommended revisions that the committee believed were an improvement to the original form.

FORM B - ALBERTA

Form B's should be sent to shipper receiving the crude oil or condensate and not to the location receiving the production.

DEFINITION AND DESCRIPTION OF TERMS

Operator:	The party filling out the form, eg. Operator of: - cleaning plant - pipeline connected facility - pipeline connected to a feeder pipeline - production facilities delivering to a truck terminal
Shipper:	The recognized owner of the production.
Feeder Pipeline Description:	Name and pipeline code for receiving pipeline.
Pipeline Connected Facility Location:	Name and appropriate code for the facility connected to the feeder pipeline, including truck terminals.
Production From:	The location and producer contracting with the shipper where this information differs from that appended under: - operator - pipeline connected facility location - truck terminal
Segregated Condensate:	Condensate which is segregated from crude oil and shipped as condensate.

FORM B - ALBERTA (Continued)

DESCRIPTION OF CHANGES

- ALBERTA has been included in the heading to eliminate confusion with the SASKATCHEWAN form.

- A Multi-page Block and an amendment number (#) have been added as described in the Form A description.

- An ERCB shipper code has been included to facilitate the feeder pipeline keypunch systems.

- Truck terminal and operator field and battery codes have been separated with an "or" to indicate that one or the other, not both, should be used.

- The area designated "Production From" has been changed to allow for a description of ownership to facilitate shipper recognition of producers who ship production through a third-party location or are working interest owners taking production in kind.

- Segregated condensate has been added to facilitate forecasting of condensate.

- A comments section has been included to advise shippers of turnarounds, workovers, unrateable deliveries, or any other deviation from the normal delivery pattern.

- The form in general has been expanded to facilitate keypunch input and includes all recommended revisions that the committee believed were an improvement to the original form.

Form A - Alberta
Forecast of Crude Oil and Condensate Deliveries
Truck Terminals, Cleaning Plants, Pipeline Connected Facilities and Feeder Pipeline Systems

PAGE	OF

MONTH -	19
AMENDMENT -	☐ #
DATE -	

OPERATOR -	
DDRESS -	
EPRESENTATIVE -	
ELEPHONE -	ERCB OPERATOR CODE -

Volumes in m^3

eceived From:	PIPE LINE	OR	TRUCK TERM	OR	OPER	FIELD	BATTERY	LOCATION DESCRIPTION
elivered To:	PIPE LINE	OR	TRUCK TERM	OR	OPER	FIELD	BATTERY	LOCATION DESCRIPTION

SHIPPER	SEGREGATED CONDENSATE	CRUDE OIL	
		INITIAL	OTHER
PMC			
TOTAL			

eceived From:	PIPE LINE	OR	TRUCK TERM	OR	OPER	FIELD	BATTERY	LOCATION DESCRIPTION
elivered To:	PIPE LINE	OR	TRUCK TERM	OR	OPER	FIELD	BATTERY	LOCATION DESCRIPTION

SHIPPER	SEGREGATED CONDENSATE	CRUDE OIL	
		INITIAL	OTHER
PMC			
TOTAL			

MENTS

8707

Form B - Alberta

Forecast of Crude Oil and Condensate Deliveries To Shippers

PAGE OF

OPERATOR -	ERCB OPERATOR CODE -
ADDRESS -	
REPRESENTATIVE -	TELEPHONE -
Deliveries to the Account of - Shipper:	ERCB SHIPPER CODE -

MONTH - 19

AMENDMENT - ☐ #

DATE -

Volumes in m^3

Feeder Pipeline Description: Pipeline Code:

Pipeline Connected Facility Location: TRUCK TERM ☐ OR OPER ☐ FIELD ☐ BATTERY ☐ LOCATION DESCRIPTION ☐

Production From:

IDENTIFY LOCATION AND PRODUCER CONTRACTING WITH ABOVE SHIPPER	SEGREGATED CONDENSATE	CRUDE OIL	
		INITIAL	OTHER
TOTAL			

Feeder Pipeline Description: Pipeline Code:

Pipeline Connected Facility Location: TRUCK TERM ☐ OR OPER ☐ FIELD ☐ BATTERY ☐ LOCATION DESCRIPTION ☐

Production From:

IDENTIFY LOCATION AND PRODUCER CONTRACTING WITH ABOVE SHIPPER	SEGREGATED CONDENSATE	CRUDE OIL	
		INITIAL	OTHER
TOTAL			

COMMENTS

AL.1.151

SEP - 3 1987

ERCB

Energy Resources
Conservation Board

640 Fifth Avenue SW
Calgary, Alberta
Canada T2P 3G4

Informational Letter

IL 87-11

27 August 1987

To: All Oil and Gas Operators

RECOGNITION OF CHANGES IN MRL
MODIFIED PRORATION SYSTEM

At the request of CPA and IPAC the Board has agreed to recognize production due to increases in MRLs earlier than presently prescribed under the Modified Proration Plan (MPP). The Board is now prepared to recognize the production due to an approval of a higher MRL for the month preceding when it would normally be approved in the Initial Production Order. This change is adopted as an interim measure extending to the end of 31 December 1987 and will be reviewed as part of the overall assessment of the MPP scheduled for the last quarter of 1987.

To accommodate this change the Board will be required to manually change the allowable for production entities in the production surveillance process. We propose to continue our surveillance for overproduction recognizing only the MRL set out in the prescribed IP Order and utilizing existing overproduction policy. If operators plan to produce their higher MRL during the month before it is shown in the IP Order, the Board expects those operators to apply for exemption from overproduction.

Such applications should include the following information:

- Field
- Pool and Pool Type
- Well I.D. if Single Well
- Block Name and Number if Block
- Project Name and Number if Project
- PSU Name and Number if PSU
- Month/Year of Increased MRL Application
- Increased MRL

To offset the additional cost incurred for manually processing these appeals a fee of $100 per entity (single well, project, block or PSU) must accompany the request to amend the overproduction.

The Board has received the support from CPA, IPAC and SEPAC to proceed with this interim provision, which will take effect 1 September 1987 and involve MRL applications approved for 1 October 1987.

Applications and questions relating to this issue should be directed to Sandy Wanka at 297-8345.

R. T. Bording
Manager, Accounting

ERCB

Energy Resources
Conservation Board

640 Fifth Avenue SW
Calgary, Alberta
Canada T2P 3G4

Informational Letter

IL 87-12

NOV 10 1987

3 November 1987

TO: All Oil and Gas Operators

HORIZONTAL WELLS
CONVENTIONAL OIL AND GAS POOLS

This letter provides information regarding the licensing, completion approvals, and spacing/target area provisions associated with horizontal wells and horizontal completions. As well, where application for experimental status for such projects is being considered, this letter supplements the information and policies outlined in Informational Letters IL-OG 78-12 and IL 80-23.

A. Well Licensing, Completion Approvals, and Spacing/Target Areas Considerations for Horizontal Wells

Horizontal wells are subject to the same licensing provisions as other wells. Proponents of horizontal recompletions from existing wells are requested to obtain prior approval from the Board's Drilling and Production Department.

Horizontal wells and horizontal recompletions in existing wells are also subject to the same Drilling Spacing Unit (DSU) considerations as conventional vertical wells. To be considered on target, the entire horizontal borehole within the producing formation must be within the DSU target area unless otherwise exempted by a special spacing provision. Off-target penalty factors will be calculated on the basis of the point of furthest departure from the target area or, in the case of special spacing orders prescribing minimum interwell distances, the point of closest approach to other wells.

Upon termination of drilling operations, operators must conduct and submit results of a directional survey covering both the vertical and horizontal wellbore sections.

B. Horizontal Well Experimental Schemes

The Board has recently granted several experimental scheme approvals involving the drilling and operation of horizontal wells for the recovery of hydrocarbon from conventional oil and gas pools (Table No. 1).

The primary objective of these tests is to demonstrate, under field conditions, the feasibility of horizontal wells as a means of enhancing conventional oil or gas recovery. The drilling of such wells is not, in itself, considered to be experimental. The Board recognizes the merits of this type of technology and thus has approved, and is prepared to approve, such projects provided they are sufficiently distinct from previous tests as to be unique in Alberta.

The following are particular matters that operators should consider when applying for experimental horizontal well projects.

1. Experimental Status

   Applications for horizontal well experimental schemes should describe the objectives of the projects and outline the manner in which they qualify for experimental status in accordance with the ERCB policy letter IL OG 78-12.

   Consultation with both the ERCB and the Alberta Department of Energy is recommended if experimental royalty status is an objective. Operators are reminded that the Department reserves the right to decide whether or not, and for what term, experimental royalty status will be provided.

2. Information Release

   Routine well information including basic well licensing data, drilling depth information, drilling reports, well logs, and core data will be released in accordance with the information release regulations unless modified by the terms of an approval.

   The Board will consider requests for confidential status for other information such as production data, production test data (ie. AOF and PI tests), special log and core measurements, special drilling and progress reports. At the end of the experimental term of the project, all data will immediately be made publicly available.

N. A. Strom
Vice Chairman

TABLE NO. 1

Field/Area	Operator	Approval No.
Rainbow	Esso	5152
Suffield	AEC	5424
Twining	Bumper	5425
Ethel	CHEL	5426
Ansell	CHEL	5440